

controller generating an asset delivery characteristics (ADC) message including a parameter value indicating a transmission characteristic on one asset and a sending unit sending the generated ADC message, wherein the generated ADC message is periodically or aperiodically updated for the asset.

[0017] Further, according to an embodiment of the present invention, an apparatus for allocating a network resource in an intermediate node of a communication system comprises a receiving unit receiving an asset delivery characteristics (ADC) message including a parameter value indicating a transmission characteristic on one asset and a controller, in a case where the ADC message is different from an ADC message previously received, identifying the amount of network resources required in the ADC message based on the ADC message, comparing the amount of network resources previously reserved with the identified amount of network resources to estimate the amount of available network resources, and allocating the estimated amount of available network resources to other traffic, wherein the ADC message is periodically or aperiodically received for the asset.

[0018] Further, according to an embodiment of the present invention, an apparatus for allocating a network resource in a receiving entity in a communication system comprises a receiving unit receiving at least one asset delivery characteristics (ADC) message including a parameter value indicating a transmission characteristic on one asset and a controller estimating the amount of buffer for the asset based on the received, at least, one ADC message, wherein the ADC message is periodically or aperiodically received for the asset.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] FIGS. 1 and 2 are views illustrating use of network resources in a conventional communication system;

[0020] FIG. 3 is a view illustrating a MMT flow configuration applicable to a communication system according to an embodiment of the present invention;

[0021] FIGS. 4A and 4B are views illustrating an example in which a sending entity transmits one ADC message per asset according to an embodiment of the present invention;

[0022] FIGS. 5A and 5B are views illustrating a method for updating an ADC message in a sending entity according to an embodiment of the present invention;

[0023] FIG. 6 is a view illustrating an example in which a sending entity transmits an ADC message in a sub-ADC form according to an embodiment of the present invention;

[0024] FIG. 7 is a view illustrating a configuration of a sending entity in a communication system according to an embodiment of the present invention;

[0025] FIG. 8 is a view illustrating a configuration of an intermediate node in a communication system according to an embodiment of the present invention;

[0026] FIG. 9 is a view illustrating a configuration of a receiving entity in a communication system according to an embodiment of the present invention;

[0027] FIG. 10 is a view illustrating a method for allocating a resource in a sending entity of a communication system according to a first embodiment of the present invention;

[0028] FIG. 11 is a view illustrating a method for allocating a resource in an intermediate node of a communication system according to the first embodiment of the present invention;

[0029] FIG. 12 is a view illustrating a method for allocating a resource in a receiving entity of a communication system according to the first embodiment of the present invention;

[0030] FIG. 13 is a view illustrating a method for allocating a resource in a sending entity of a communication system according to a second embodiment of the present invention;

[0031] FIG. 14 is a view illustrating a method for allocating a resource in an intermediate node of a communication system according to the second embodiment of the present invention;

[0032] FIG. 15 is a view illustrating a method for allocating a resource in a receiving entity of a communication system according to the second embodiment of the present invention; and

[0033] FIG. 16 is a view illustrating a resource saving effect when a sub-ADC is used according to the second embodiment of the present invention.

BEST MODE

[0034] Hereinafter, preferred embodiments of the present invention are described in detail with reference to the accompanying drawings. It should be noted that the following description primarily focuses on what is necessary for understanding the operations of the embodiments, omitting descriptions unnecessary for clarifying the subject matter of the present invention.

[0035] A major gist of the present invention is to allocate resources using an asset delivery characteristics (ADC) message to enhance use efficiency of network resources. In particular, according to an embodiment of the present invention, the sending entity sends ADC message to the receiving entity and intermediate nodes in intermediate ends of the network, and the receiving entity refers to the received ADC message to adjust the amount of buffer per media (asset) in the receiving entity according to time. Media aware network entities (MANEs) which are intermediate nodes over the network allocate a predetermined amount of network resources to a corresponding flow through a network resource reservation protocol to provide a per-flow service to the receiving entity. Further, they extract the ADC message from MMT packets transmitted from the sending entity to the receiving entity, extract a value indicating the current transmission characteristic of assets flowing through a particular MMT flow from the corresponding ADC message, compare the amount of resources reserved as a representative value through the network resource reservation protocol with the amount of actually necessary resources per media as identified through the ADC message, identify the amount of resources available, and allocate them to other traffic. Such embodiment of the present invention allows the communication system to efficiently utilize network resources.

[0036] To that end, according to an embodiment of the present invention, a method and apparatus for allocating resources in a communication system are described in detail.

[0037] FIG. 3 is a view illustrating a MMT flow configuration applicable to a communication system according to an embodiment of the present invention.

[0038] Referring to FIG. 3, an ADC message in a MMT flow includes information (hereinafter, ADC signaling information) indicating the transmission characteristic of asset (e.g., video, audio, text, or file). An ADC message for one asset includes a plurality of media processing units (MPUs).